

## WHAT IS CLAIMED IS:

1. A method of establishing data communication between two subsystems via a communication cable in a communication system, the data communication being established after a predetermined connection procedure between the subsystems via the communication cable, comprising the steps of:

connecting two subsystems with each other via the communication cable;

recognizing physical connection between the two subsystems by the two subsystems;

ignoring signals from one of the two subsystems by the other for a predetermined time period from the recognizing step;

executing the connection procedure by the two subsystems; and

establishing data communication between the two subsystems.

2. The method claimed in claim 1, wherein each one of the two subsystems sends constant signals to the other subsystem at the ignoring step.

3. The method claimed in claim 1, wherein the connection procedure comprises arbitration of transmission rate.

4. The method claimed in claim 3, wherein the arbitration comprises the steps of:

informing one of the subsystems of the other subsystem's transmission rate; and

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lowering higher transmission rate to lower transmission rate so as to be correspondent transmission rates of the two subsystems with each other

5. The method claimed in claim 4, wherein the arbitration further comprises the step of sending an acknowledgement signal from one of the subsystems to the other when the subsystem recognizes the correspondence of the transmission rate.

6. The method claimed in claim 1, wherein the communication system is an optical communication system.

7. The method claimed in claim 6, wherein the communication cable comprises plastic optical fiber.

8. A communication system for establishing data communication, comprising at least one communication cable and at least two subsystems, the communication cable connecting two of the subsystems with each other, the data communication being established between the subsystems after a predetermined connection procedure, wherein each of the subsystems comprises:

a physical layer interface circuits for recognizing physical connection with another subsystem and executing the connection procedure; and

a protection circuit for ignoring signals sent from another subsystem for a predetermined time period after the physical layer interface circuit recognizes physical connection with another subsystem.

9. The communication system claimed in claim 8, wherein the subsystem sends constant signals to another subsystem for the predetermined time period after the

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physical layer interface circuit recognizes physical connection with the other subsystem.

10. The communication system claimed in claim 8, wherein the connection procedure comprises arbitration of transmission rate.

11. The communication system claimed in claim 10, wherein the arbitration comprises the steps of:

each one of the two subsystems informing the other subsystem of its transmission rate; and

lowering higher transmission rate to lower transmission rate so as to be correspondent transmission rates of the two subsystems with each other.

12. The communication system claimed in claim 11, wherein the subsystem sends an acknowledgement signal to the other subsystem when the subsystem recognizes the correspondence of the transmission rate after the arbitration.

13. The communication system claimed in claim 8, wherein the communication system is an optical communication system.

14. The communication system claimed in claim 13, wherein the communication cable comprises plastic optical fiber.

15. A device which establishes data communication with another device via a communication cable, the data communication being established after a predetermined connection procedure, comprising:

a physical layer interface circuits for recognizing physical connection with another device and executing the

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connection procedure; and

a protection circuit for ignoring signals sent from another device for a predetermined time period after the physical layer interface circuit recognizes physical connection with another device.

16. The device claimed in claim 15, wherein the device sends constant signals to another device for the predetermined time period after the physical layer interface circuit recognizes physical connection with the other device.

17. The device claimed in claim 15, wherein the physical layer interface circuit arbitrates transmission rate between the device and another device that is physically connected to the device.

18. The device claimed in claim 17, wherein the physical layer interface circuit:

informs the other device of its transmission rate;  
is informed the other device's transmission rate by the other device; and

lowers its transmission rate if its transmission rate is higher than that of the other device.

19. The device claimed in claim 18, wherein the device sends an acknowledgement signal to the other device when the device recognize the correspondence of the transmission rate after the arbitration.

20. The device claimed in claim 15, wherein the device is for a node of an optical communication system.

21. The device claimed in claim 20, wherein the communication cable comprises a plastic optical fiber.

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